

Abstract of

Dealing with Information Overload: Ockham's Razor in the Hands of the Joint Force Commander

The increasing volume of information available to the Joint Force Commander (JFC) has resulted in the possibility that the JFC may be overloaded with information. Our technological advances, which have enabled this phenomenal ability to amass and disseminate information, have outpaced our development of doctrine for its handling. An existing piece of doctrine, the CCIR, can be employed in such a manner as to permit the JFC to impose a sense of order on the chaotic information environment.

Using CCIR, the JFC can organize an operation from planning to execution with a concise and adaptable format for interpreting the information (and intelligence). The staff can, likewise, organize itself according to the CCIR (and its updates) in order to keep abreast of the JFC's priorities.

We must not be fooled by our own technology and seek a solution to this problem that is merely technical. The solution is a method, simple and concise - and it is available now: CCIR.

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It is widely recognized that the military forces of the United States are outpacing all others in their ability to collect and disseminate huge amounts of information. The term *information dominance* has entered our lexicon, and is being referred to as the key to victory. This paper will focus not on how to gain information dominance, but rather how the Joint Force Commander (JFC) can avoid being dominated by information.

Searching For A Technical Solution to A Non-Technical Problem

“Thus, what is of supreme importance in war is to attack the enemy’s strategy.” “All warfare is based on deception.”
“No enterprise is more likely to succeed than one concealed from the enemy until it is ripe for execution.”
“The real target in war is the mind of the enemy commander, not the bodies of his troops.”

The preceding citations of Sun Tzu (2), Macchiavelli, and Liddell Hart are found in Joint Pub 3-13, Joint Doctrine for Information Operations.¹ It is telling that the newest discipline in joint operations seeks support from such citations, some nearly 2500 years old. It seems there truly is nothing new under the sun. The means may change (technology), but the ends (attack, deceive, defend) remain very much the same.

Joint Pub 3-13 describes information operations (IO) as: “actions taken to affect adversary information and information systems while defending one’s own information and information systems. They apply across *all phases of an operation*, the *range of military operations*, and at *every level of war*. They are a critical factor in the joint force commander’s (JFC’s) capability to achieve and sustain the level of *information superiority* required for decisive joint force operations.” (italics mine)

Notice the all-encompassing nature of these operations. Yet, this expansive information superiority must reside in the mind of the commander (the JFC). Everything the

¹ U.S. Joint Chiefs of Staff, Joint Doctrine for Information Operations. Joint Pub 3-13. (Washington, DC: 9 October 1998), vii.

JFC does and decides will be guided by his grasp of the situation. The JFC must be the best-informed person in the battlespace.

Information has come to be viewed as a commodity in the international marketplace. It is perhaps inevitable that in the relatively recent tradition of looking to business models for guidance and improvement, the military would look at information as well. Notice that the Joint Pub's definition does not cover information gathering. And how is information distinguished from intelligence? The terms often overlap. This paper shall discuss them as a whole, not because they cannot be distinguished, but because the JFC should think in terms of knowledge of the battlefield, not merely information or intelligence. The CCIR (Commander's Critical Information Requirements), includes both information and intelligence and will be discussed in detail later. CCIR will provide the means for the JFC to master the floodtide of information. With CCIR, the JFC will impose his order on the chaos of information and intelligence.

It is essential to realize that the difficulty in handling information is not primarily a technical problem, and there is not, therefore – and never will be – a technical solution. More bandwidth, higher speed microprocessors, and other tools are not going to solve our information overload difficulties. This is not to say that the weapons and sensors and communications devices in use today could not continue to benefit from improvements in technology. The historical record bears out that development and later improvements of command and control devices have steadily improved the efficiency and speed of command and control. However, the decisions made have not necessarily improved – empirical data is not needed here. Decisions are still made by humans. Has human nature changed? The question is: how are we humans going to handle all of this information? More specifically, how is the JFC going to handle it?

The architecture of command and control systems is rapidly improving. The mass and speed of information flow is accelerating. Again, this is desirable, the complexity of our

weapons requires it. But is this growth necessarily an improvement for the JFC? How does the JFC master the process, rather than be mastered by it? What sort of information should he be concerned with and how should he determine what that would be? How shall he impose order on the chaos?

The following briefly illustrates the problem. One could make a good argument that the armed forces of the United States are open to innovation. Our forces may not be paragons of progressiveness, but all things considered, they are not resistant to change, and are willing to experiment. But there are drawbacks to progressiveness. Our openness to innovation has caused us to adopt new technologies and new terminology with amazing speed. The terms describing these new machines are coined and then altered so frequently that often they are not committed to memory and we are not always clear on what should be the accepted version of the term. Indeed, the term itself has a meaning that is so flexible, so amorphous, that it is difficult to define, and we sometimes end up by saying nothing.

Command and control is a good example. Notice the changes over the past twenty-five years. In the early to mid 1980's the services still spoke mainly of command and control. The advances in communications capabilities caused this to soon be rendered as CCC, since communications are inherently a part of command and control. Intelligence, next deemed to be an integral part, was added, thus C3I. The widespread use of computers then necessitated the version C4I. There are many versions now, often used together and without much sense of discrimination: C4ISR, C4I2, and even C4I2R. Notice how means are mixed with ends: command and computers. The two do not belong in the same term if we wish to have any clarity in our discourse. The indiscriminate use of the forgoing terms belies a lack of intellectual discipline, or perhaps a lack of reflection. What exactly are we trying to say?

A Description of the Problem

The JFC must establish the big picture; he must impose order on the chaos. Speaking of the necessity to understand information arbitrage in our increasingly globalized world, Thomas Friedman cites an observation of Murray Gell-Mann: “We need a corpus of people who consider that it is important to take a serious and professional crude look at the whole system. It has to be a crude look, because you will never master every part or every interconnection.... We have to learn not only to have specialists but also people whose specialty is to spot the strong interactions and the entanglements of the different dimensions, and then take a crude look at the whole.”²

“...it really is the commander’s *coup d’oeil*, his ability to see things simply, to identify the whole business of war completely with himself, that is the essence of good generalship. Only if the mind works in this comprehensive fashion can it achieve the freedom it needs to dominate events and not be dominated by them.”³

The growing capabilities of information technology and the concurrent growing discipline of information operations necessitates a different way of organizing these functions. Recent operations confirm the requirement for a more straightforward system of overseeing the amassing of information.

The JFC needs a method, not a gadget. He can use the CCIR as Ockham’s Razor to reduce the complexity to the essentials and not be lost in the mass of information.

“non sunt multiplicanda entia praeter necessitatem”
(entities are not to be multiplied beyond necessity)⁴
William of Ockham

Put into context, this was William of Ockham’s method of thinking, his defense against the obscurantist arguments of his day in theology and philosophy. Tired of the endless

² Thomas L Friedman. The Lexus and the Olive Tree (New York: Anchor Books, 2000), 28.

³ Michael Howard and Peter Paret, ed., Carl von Clausewitz: On War (Princeton: Princeton University Press, 1976), 578.

complexities posited by Duns Scotus and others he adopted this credo as his method for getting to the essence of things. This is not mere reductionism, it is, rather, a logical and clear method of reasoning.

The CCIR: What is it?

The draft of the forthcoming edition of Joint Pub 1-02⁵ defines CCIR, the Commander's Critical Information Requirements as:

“A comprehensive list of information requirements identified by the commander as being critical in facilitating timely information management and the decision making process that affect successful mission accomplishment. The two key subcomponents are critical friendly force information and priority intelligence requirements.” Critical friendly force information (sometimes also known as EEFI – Essential Elements of Friendly Information) or simply, Critical Information is defined as “specific facts about friendly intentions, capabilities, and activities vitally needed by adversaries for them to plan and act effectively so as to guarantee failure or unacceptable consequences for friendly mission accomplishment.”⁶ Priority Intelligence Requirements (PIR's) are “those intelligence requirements for which a commander has an anticipated and stated priority in the task of planning and decision making.”⁷ Army FM 101-5-1 adds FFIR (Friendly Forces Information Requirements) to the list.⁸ It is not included as a subcomponent in Joint Pub 1-01's

⁴ The New Encyclopaedia Britannica. 15th ed., s.v.. “William of Ockham.”

⁵ U.S. Joint Chiefs of Staff, Department of Defense Dictionary of Military and Associated Terms Joint Pub 1-02 (Washington, DC: Draft – as amended through 1 September 2000), 91.

⁶ Ibid., 117.

⁷ Ibid., 363.

⁸ John R. Sutherland, III, Win, Lose, or Draw; CCIR and the Commander's Role in Building Shared Vision. School of Advanced Military Studies, United States Army Command and General Staff College (Fort Leavenworth, KS: Dec. 1998), 21.

definition. It should be. FFIR includes all of those things normally tracked by any commander: fuel states, current position, state of repair, etc. By including FFIR, the CCIR could be used as a comprehensive list of those things the commander will use to monitor the entire operation and to formulate his decisions.

The term CCIR, while relatively new in joint parlance, has been used for years in the Army. The Army has blazed the trail in this matter. While the current Joint Pub on Information Operations does not include CCIR, the Army's FM 100-6 *Information Operations* has CCIR integrated into almost every chapter.⁹ It also implies that CCIR must be adaptive.¹⁰

CCIR has been described as a filter and it has been suggested that 10 items should be the maximum number on the list.¹¹ Rather than be that prescriptive, this paper submits that the CCIR must be used to govern the conduct of the entire operation – that is, the commander must establish the information/intelligence priorities, and the operation should use these as a point of departure. The number and types of information and intelligence must be left to the druthers of the commander. The situation in the field and his own personal experience will dictate the quality and scope of the CCIR. CCIR can now be adapted and employed as Ockham's Razor in the hands of the JFC, enabling him to cut out the fat and get to the meat of the matter.

Information overload is not new. The means by which it occurs is new. Any commander of the past who had too many advisors or too many subordinates reporting to him was susceptible to information overload. Today, the difference is that the overload may arrive via our information exchange systems rather than by individuals. It is still the job of the commander to decide what shall be his focus.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid., 23.

Win, Lose or Draw; CCIR and the Commander's Role in Building Shared Vision, by MAJ John R. Sutherland, made a cogent case for the commander's responsibility in developing CCIR and the role of CCIR as a means of reducing information overload. As he points out, in FM 100-6, CCIR is considered as the basis for setting up the C4I architecture. A great idea. It is time for the Joint Force commander to use CCIR.

How Should the CCIR be Developed and by Whom?

Commanding Officers (C.O.'s or Captains) of naval ships have long used CCIR, though it hasn't been called by that name. Each C.O. develops his own set of *standing orders* governing the conduct of the watch. These standing orders are varied in format and can differ greatly from one ship to another, depending on the ship type, but more importantly, depending on the personality of the C.O. The standing orders delineate the Captain's standards for the key watchstanders of the ship: primarily the Officer of the Deck (OOD) on the bridge, the Combat Information Center Watch Officer, and the Engineering Officer of the Watch (the Tactical Action Officer in Combat is addressed to some extent, but his watch standing functions are mainly addressed by battle orders). The primary executor of these orders is the OOD. These orders are also supplemented by *night orders*. One of the most important facets of the standing orders and the most important part of the night orders is the section or sections detailing when the Captain should be notified. Obviously, there are many events occurring on each watch which, though important, do not warrant the Captain's immediate attention. There are however some things which must always have his attention: e.g. ship maneuvers, navigational information, changes in the weather, etc. These necessities for informing the Captain form the essential part of the orders. Every OOD is keenly attuned to this matter and is an expert on their content. They govern the very way he or she stands the watch. A good OOD knows them by heart. The OOD serves as the eyes and ears of the Captain, when the Captain is off the bridge. Merchant ships function in

similar fashion – all deck watch officers are very clear on the limits of their authority and on the situations which necessitate notification or involvement of the Captain. This portion of the orders forms the CCIR

Now imagine the JFC tailoring a set of *standing orders* or guidance for the Information Officer (ideally the JFC's Deputy, or perhaps the J3). This standard guidance, which we will call the CCIR, will detail those informational and intelligence requirements deemed to be the most important to the commander. They will be developed based on the situation and therefore will never be consistent from one conflict to another. Moreover, they will change during the course of the conflict depending on the phase. They will be updated from day to day and will be heavily influenced by the behavior of the enemy. This update will be the *night orders* of the JFC's CCIR.

The development of the CCIR will be the responsibility of the commander (he will begin with recommendations from the Deputy or the J3). But inasmuch as the information/intelligence will affect the very nature of the operation, it should be the bedrock of the preliminary planning and the framework of the daily staff briefs. The INTEL review, which so often starts any brief, and begs questions regarding the operational situation, will instead be a rundown on the CCIR (and its daily supplement). This CCIR review will thus answer the questions of the JFC and set the framework for the rest of the briefing which will flesh out the details.

Some Examples: Operations *Joint Endeavor* and *Allied Force*

Two examples of recent operational experience in the former Yugoslavia provide an insight into the problem of handling mass amounts of information. During *Joint Endeavor* the information gathering conducted by IFOR was “inept.”¹² CCIR development was tasked

¹² John A. Gentry, “Knowledge-Based Warfare: Lessons from Bosnia.” (The Officer, January/February 1999), 139.

to the intelligence community, but belatedly, and it didn't have any topics traditionally related to intelligence, save force protection.¹³ At one point, the PIR (Priority Intelligence Requirements), which is a part of the CCIR, was drafted as a separate document.¹⁴ The use of CCIR seemed to be an administrative requirement instead of an operational need. "There was no interest in coherent gathering of information or the collection of intelligence that would help COMIFORs Admirals Leighton Smith and Joseph Lopez. Despite some legitimate command and control problems and understandable suspicions associated with the multinational operation, there was no effort to establish a means to identify the basic situation in the country, identify priorities for work, or develop the informational or analytical means to assess whether real progress had been made and in what areas."¹⁵

Failure to impose order on this information environment resulted in "... chaos and knowledge-based embarrassments."¹⁶ It was not merely an intelligence failure or the failure to have an effective IO cell. The result was "that many intelligence officers in Washington and B-H [Bosnia-Herzegovina] believed that they did not have an adequate grasp of events on the ground. Without this, they were hard-pressed to help the Clinton Administration make good decisions in the face of changing events, preconceptions, and vulnerability to "strategic deception" Admiral Smith says he faced every day."¹⁷ "More data does not always make the job of evaluation easier and may be counterproductive if the busy commander must spend time deciding which knowledge to try to master. The human brain is not subject to technological innovations that speed data processing, and its ability to generate wisdom is limited."¹⁸

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid, 139-140.

¹⁷ Ibid, 142.

¹⁸ Ibid.

There was no plan for evaluating open-source information, neither was there any demonstrated ability to place this information into context.¹⁹ As a result, much of the information reported by the press was simply dismissed.²⁰ “Many IFOR personnel, thus did not know how to assess the sophisticated knowledge-based warfare direct at them by the ideologically motivated foreign groups and the parties to the conflict in Bosnia. It was a major vulnerability, usually unrecognized, that reflected stunning institutional incompetence.”²¹

Much of the detailed analysis of the Informational, Intelligence and Command and Control aspects of the subsequent operation, *Allied Force* remains classified. In the unclassified version it is acknowledged that further integration of the collection systems of ISR (Intelligence, Surveillance, and Reconnaissance) is required.²² Furthermore, it is also noted that the technologies for command and control require that appropriate doctrine as well as tactics, techniques and procedures are needed.²³ This is the crux of the matter. Information (including intelligence) is the essence of command and control. One cannot command in the dark – knowledge of the situation is vital. It is interesting that the portion pertaining to Information Operations planning had only a single sentence recommendation which stated that it must be “initiated early and synchronized with other operational plans.”²⁴

The desirability of operating as a coalition is another reason for seeking a non-technical solution to information overload. The lack of compatibility of our information exchange systems with our allies can be mitigated if we restrict the transmission of data to the essential. Certain networks are going to require high volumes of data – imagery, for instance, but the essentials of information and intelligence should be concise enough to

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid, 141.

²² U.S. Department of Defense, Report to Congress, Kosovo/Operation Allied Force After-Action Report (Washington, DC: 31 January, 2000), 131.

²³ Ibid.

permit networking with our partners, no matter the level of technical prowess. Additionally, sticking to the bare essentials can also lessen the impact of network attacks or any other technical problem that would impede the flow of the information and intelligence.

This is not to say that research and development in pursuit of better systems is not money well-spent. The aim of this paper does not include any analysis of systems or recommendations for future procurement. The focus is on what the JFC can do in the here and now. The gear and gadgets are there or not there as the case may be – the JFC cannot always choose his equipment. How he makes do is more important than the gear - and always will be. That is why CCIR is important.

The JFC Should Seek Knowledge of the Theater, not merely Intelligence or Information

Information and intelligence are crucial to the decision-making process of the commander and form the basis for virtually all of the decision-making for a given military operation. The need for access and dissemination of this knowledge is going to be spread across the staff of the commander and exists among all of the subordinate commands.

The definition of CCIR includes information as well as intelligence. The close relationship of the two, their inextricable link to command and control, and their sometimes overlapping content all argue for a fused picture for the JFC. Winning by not fighting or attacking the enemy's strategy is just a form of information warfare. All forms of subterfuge and deception are likewise information warfare. There are examples a plenty throughout history. Technology has not created information warfare, it has enabled it. The JFC must not be beguiled by the seeming complexity. He must impose his order on the chaos by separating that which is key from that which is secondary. That is the first and greatest trait

²⁴ Ibid., 135.

of the commander. He must not be overwhelmed by the complexity of the Gordian Knot²⁵ of information overload. Like Alexander the Great, he must cut through it and leave the others to marvel at his boldness and insight.

The merging of information and intelligence does not mean that IO must now be removed from the J3. Operations remains operations and any function performed that is an operational function must be conducted by the J3. The information and intelligence that must be merged will form the common briefing provided to the JFC, and will guide his formulation and periodic updates of the CCIR.

Subordinating Information/Intelligence to Operational Functions So That They May Serve Them

As vital as information dominance is, and as much as it occupies our discussion of late, it must be remembered that it is only a means to an end. Information has always been important, but it has never been the end product of an operation. Our ability to rapidly collect vast amounts of information has made it more accessible but also more cumbersome. And thanks to the color displays and the smooth, elegant format of this information, it has taken on a new patina, a brand-new appearance. We are convincing ourselves that it is so overarching (a very trendy term) that it is an end in itself. Not so. Don't listen to the charlatans of cyberspace.

Les techniciens: il faut s'en servir, mais il ne faut pas les écouter.²⁶ (Technicians: it is necessary to make use of them, but we must not listen to them.) They are going to develop

²⁵ Peter Green, Alexander of Macedon (356-323 B.C.): A Historical Biography, Berkeley, CA: University of California Press, 1991, 213,214. There are many stories pertaining to this act of Alexander. The Gordian Knot was probably something like a sailor's turk's head, which conceals the bitter ends and seemingly has no start or end. An ancient oracle associated with this relic stated that whoever loosed the knot would be Lord of all Asia. Alexander, according to one account, not willing to ponder the mystery of the knot, simply slashed through in one single sword stroke, revealing the secret of the continuous knot.

technical solutions to technical problems. The distribution of information may be a technical problem, but its analysis and prioritization are a part of command and control. The term “fog of war” has entered the lexicon of the general populace. Everyone recognizes the aptness of the term – it has the ring of truth about it. It will never dissipate unless there is a commander who refuses to submit to it. Because when you get down to what is really important, there can only be a few things that are vital and it will always be the job of the commander to identify them.

Operational information (and intelligence) must serve the other operational functions: operational command and control, operational movement and maneuver, operational fires, operational logistics, operational protection. None of them can work without the knowledge gained from the information. The CCIR will contain what is necessary for the other functions. Information will thus be the enabler of the operation and not an end in itself. Victory and information dominance are not the same thing.

Observations

To repeat, this is not a technical problem. There will always be a desire for improvements, but we must first master and economize what we have, or be mastered by it. “The high-volume data transmission system installed in IFOR headquarters in September was used to transmit weather photos which senior officers appeared to value mainly as a guide to whether their VIP flights would be able to fly; the Joint Operations Center (JOC) had no significant use for it.”²⁷ How many resources were directed at the installation and operation of this system?

²⁶ J-R. Tournoux, Secrets D’État: Pétain et De Gaulle (Paris: Librairie Plon, 1964), 132. Charles De Gaulle’s comment after receiving more commentary than he thought worthwhile from an officer (lacking the big picture) controlling a tank exercise.

²⁷ Op Cit. Gentry, 140.

The commander must have a discerning eye. The deception inherent in information – especially images – that are bereft of context or explanation is beguiling. If the JFC is not able to doubt and sometimes dismiss information, he will be fooled. Likewise, he must be willing to look at information from sources that are contradictory and also those that are actively opposing the operation. Imagine how imposing this problem can become when the information is magnified a hundredfold over past experiences and when it is so accessible to all. Again, the commander must impose order on this chaos, and the CCIR can be the means.

Discipline in terminology is as important as always. The JFC must be clear in the delineation of the CCIR. He should ensure that the staff fully understands the meaning of the terms and acronyms he is employing and he must draw the boundaries of the problem. It is probably safe to say that we are also in the midst of terminology overload and that has caused a resulting lack of respect for the meaning of the words we have been using. If we cease to believe in the power of words, we will cease to have respect for the truth. Our age has been aptly described by John Lukacs as one that has a fascination, almost a worship of facts.²⁸ That is recognizable in the prevalence of sound-bite style communication, the reverence of all things technical in nature. But war is not a technical problem. Certainly there are technical aspects to it, but its fundamental nature is not science, nor is it art. “War is an act of human intercourse. We therefore conclude that war does not belong in the realm of arts and sciences; rather it is a part of man’s social existence.... In war, the will is directed at an animate object that reacts.”²⁹

The complexity of modern war will render it incomprehensible to a commander who is unable to focus on the essential. Dependence on high-tech, better and faster data flow

²⁸ John Lukacs, Historical Consciousness, or The Remembered Past (New York: Schocken Books, 1985), chapter III, entitled *Facts and Fictions* is a groundbreaking study of this subject. Throughout the book he makes a case for avoiding the compartmentalization of dissociated facts and thus avoiding the unfortunate conclusion of adding up facts – all accurate – to an untruth.

rates, and copious amounts of theater imagery will not correct the lack of a discerning eye. A picture is not necessarily worth a thousand words, nor is it a solution. Images deceive those who are uninformed. The famous author Stendhal commented on the value of a view without context. He observed the Battle of Bautzen (1813) from a nearby hilltop: “From noon until three o’clock we had an excellent view of all that can be seen of a battle – that is, nothing at all.”³⁰ He witnessed the clash, but knew nothing of the overall situation, nor the intents of the commanders, nor was he able to distinguish the participants. He had a comprehensive picture, but he did not have the essential information. Stendhal was no mere literary dilettante; he had served in Napoleon’s army during the Russian campaign.

So, the achievement of information dominance will be a chimera if it is only the staff, or the hard drives of the joint forces computers that have the dominance. The minds of commanders must be illuminated by this information and it must be organized and concise. They must choose what to learn and must direct the information gathering effort. They must use CCIR to slice through the mass of information and discern that which is germane. They will never have the time or luxury to know it all. But they will have to know what is vital in order to achieve victory.

Conclusion

The JFC should include the development of CCIR in the planning phase of any operation, whether it be deliberate or crisis action planning. Working first with the Deputy (or the J3), then gathering input from the rest of the staff members (J4 and J6 will be heavily involved) he will begin by identifying that which he deems to be most important. The list will be concise, and entirely of the JFC’s own choosing. Because it is his choice, he will be able to limit or screen the information to that which he considers to be most essential. Doing

²⁹ Op cit., Clausewitz, 149.

³⁰ Op Cit, Lukacs, 116.

so will also focus his staff on the list and avoid them from going off on tangents – so easy to do in today’s information-rich environment. This list will be like the Captain’s Standing Orders. Standing CCIR, if you will. The JFC will also have a feedback loop for those things he overlooks. Just as the Night Orders aboard a ship state that if one is ever in doubt as to whether the Captain should be called - then he must be called; the CCIR can state that anytime a staff member thinks the JFC might want to know something, even though it is not listed - then the staff member shall inform the JFC, who will determine whether or not future reports on that subject are desired.

As the conflict commences, the JFC will develop the Night Orders or Supplemental CCIR. These will be updated daily or as the actions of the enemy dictate. In this manner, the focus on information will be kept current. The JFC will be constantly adapting his focus, the staff will know how he sees the operation unfolding, and he will be briefed on exactly those things that he considers to be crucial.

As mentioned in the section on CCIR, the current definition in the Joint Dictionary is inadequate. The CCIR must have three components: PIIR (Priority Intelligence/Information Requirements (enemy/theater info)), Critical Information (friendly force info that due to its sensitivity must be protected and concealed from the enemy), and the FFIR (Friendly Force Information Requirements – those things that commanders want to monitor concerning their own forces).

Thus a methodology has been developed that will enable the JFC to master the vital information and not be swept away by information overload. Mastering the information will not assure victory, but it will prevent decisions made in ignorance of the true situation. The chaos will have been put into an orderly format and the battle will be joined by a mind illuminated by the actual situation and not clouded by the information flowing from our many technological contrivances. His sword for cutting through the mystery of information is a small one: Ockham's Razor (CCIR).

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